



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/720,193

11/25/2003

Kazunori Shibasaki

040405-0365

4222

22428 7590 01/16/2009
FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
WASHINGTON, DC 20007

EXAMINER

BARON, HENRY

ART UNIT

PAPER NUMBER

2416

MAIL DATE

DELIVERY MODE

01/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/720,193	Applicant(s) SHIBASAKI, KAZUNORI	
	Examiner HENRY BARON	Art Unit 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 5 – 6, 8, 10, and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5 – 6, 8, 10, and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

MOBILE COMMUNICATION BASE STATION DEVICE AND QOS CONTROL METHOD AND PROGRAM THEREOF

Response to Arguments/Remarks

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 24, 2008 has been entered.
2. Claims 1, 3, 5 – 6, 8, 10, and 12 are pending in this application with claims 1, 5, 6, and 10 currently amended and claims 2, 4, 7, 9, 11, and 13 cancelled.
3. Applicant's arguments filed 11/13/2008 have been fully considered but they are not persuasive.
4. Applicant argues that the amendment claims are distinguished from Kobayashi as since setting a common signal channel capacity based on a measured traffic volume (as discussed in Kobayashi) is not the same as instructing an ATM channel based on the state of a wireless channel, where the state information of the wireless channel is associated with a data rate of the wireless channel. In particular, Applicant argues, a volume cannot be considered to be the same as a rate.
5. Applicant argues that neither Raychaudhuri nor Kobayashi teaches or suggests instructing the channel control unit to set priority to each data received from the plurality of mobile apparatuses according to a state of each wireless channel through which the data in question is transmitted and received and conduct relay through said ATM channel based on the priority in question i.e. wherein a higher priority is set to each data received if the state of the wireless channel is below a predetermined threshold and a lower priority is set to each data received if the state of the wireless channel is above a predetermined threshold.

Art Unit: 2416

6. In replying to Applicant's ' volume cannot be considered to be the same as a rate', Examiner notes that the amended claim now recites, inter alia, '..wherein the state information of the wireless channel is *associated* with a data rate of the wireless channel,..'. Support for Applicant's wireless state information *associated* with a data rate, as far Examiner can discern, is found in Applicant's Figure 3, where the ATM channel is depicted as a pipe with a vertical dimension of '10M'. Within the art the 10M dimension represents, either 10 Megabytes or 10 Megabits, but in any case, the dimension represents a data volume or (full) capacity of the ATM channel. The horizontal 'dimension' depicted in Figure 3 represents time; the solid (and wiggly) lines within the volume of the pipe represent varying wireless data rate, or change in volume (sic capacity) relative to time. In comparison, Kobayashi Figure 7 also depicts a traffic volume in the vertical dimension with a horizontal dimension which represents time. Kobayashi teaches that the common channel volume changes within a time interval, i.e. C1 – C8, where the volume changes are associated with a data rate i.e. change in volume (sic capacity) relative to time. Examiner agrees with Applicant's assertion that ' volume cannot be considered to be the same as a rate', but the change of volume over a period can be the same as a rate.

7. In reply to Applicant's argument regarding 'a higher priority is set to each data received if the state of the wireless channel is below a predetermined threshold and a lower priority is set to each data received if the state of the wireless channel is above a predetermined threshold.' Examiner refers to Kobayashi Figure 6 where a speech channel (depicted as a pipe) and a common signal channel (depicted as a smaller pipe) are embedded in a larger capacity pipe. As channel conditions change the higher priority speech data rate spills over to the unused capacity of the ' larger capacity pipe'. The lower priority common signal capacity is allowed to do the same - only if the capacity is not used by the speech channel - thus teaching where a higher priority i.e. speech is set to each data received if the state of the wireless channel is below a predetermined threshold and a lower priority i.e. common signal, is set to each data received if the state of the wireless channel is above a predetermined threshold. Further in Kobayashi

Art Unit: 2416

teaches in 5: [0011] read FIG. 4 shows in detail the manner in which the common channel capacity manager 11c operates. As shown in FIG. 4, when supplied with the traffic information from the traffic observer 11a, the common channel capacity manager 11c averages the traffic volume represented by the supplied traffic information over an average observation time T_a , producing an average value 40a, and determines which one of regions defined by discrete thresholds X_1 about X_5 the average value 40a belongs to. In the illustrated embodiment, the average value 40a belongs to the region between the thresholds X_3 , X_4 . After the region to which the average value 40a belongs has been determined, the common channel capacity manager 11c selects a larger one of the thresholds X_3 , X_4 , i.e., the threshold X_4 i.e. a higher priority is set to each data received if the state of the wireless channel is below a predetermined threshold. The common channel capacity manager 11c then compares the selected threshold X_4 with a channel capacity 41a (corresponding to the threshold X_5) to which the common signal channel 2 is presently set. If the selected threshold X_4 differs from the channel capacity 41a, then the common channel capacity manager 11c decides that the channel capacity to which the common signal channel 2 is presently set needs to be changed, and designates the selected threshold X_4 as a channel capacity to be newly established. Since the selected threshold X_4 differs from the channel capacity 41a in this illustrated embodiment, the common channel capacity manager 11c designates the threshold X_4 as a channel capacity 41b to be newly established i.e. a lower priority is set to each data received if the state of the wireless channel is above a predetermined threshold)

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2416

2. Claims 1, 5 – 6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhur, (U.S. Patent 563871) in view of Kazutoshi et al. (U.S. Patent 5978380), hereafter Kazutoshi.

3. Regarding Claims 1, 5 – 6, and 10, Raychaudhur teaches of a mobile communication base station device, QoS control method, and program in a mobile communication base station device that conducts radio communication with mobile apparatuses connected to an ATM network using modulation/demodulation and coding/decoding. (Figure 2). The examiner notes that it is common for wireless base stations to use modulation/demodulation to attach data to carrier signals and coding/decoding to mitigate data errors in transmissions. See, for example, Han et al. (U.S. Patent US 6795416) Abstract which is cited here as evidence.

4. However, Raychaudhur is silent with regards to a channel control unit to regulate ATM channel bandwidth or of a channel QoS management unit that gives instructions to the channel control unit based on the state information of the wireless channel.

5. Kazutoshi, by contrast, teaches of a wireless channel state monitoring unit (3:45-60; i.e. traffic monitor detecting means of a common signal channel); channel control unit (3:45-60; i.e. channel capacity executing mean) for ATM channel bandwidth and a QoS management unit (3:45-60 and Figure 1; i.e. channel capacity change determining mean). Note, Kazutoshi teaches of channel state (e.g. common channel signaling monitoring) between two generic exchange units (Figure 1; elements 3 and 4). However, from a data interface view, one exchange unit could be a base station and a second exchange unit could be ATM switch. Further, Kobayashi Figure 6 where a speech channel (depicted as a pipe) and a common signal channel (depicted as a smaller pipe) is embedded in a larger capacity pipe. As channel conditions change the higher priority speech data rate spills over to the unused capacity of the 'larger capacity pipe'. The lower priority common signal capacity is allowed to do the same - only if the capacity is not used by the speech channel - thus teaching where a higher priority i.e. speech is set to each data

Art Unit: 2416

received if the state of the wireless channel is below a predetermined threshold and a lower priority i.e. common signal, is set to each data received if the state of the wireless channel is above a predetermined threshold. Further in Kobayashi teaches in 5: [0011] read FIG. 4 shows in detail the manner in which the common channel capacity manager 11c operates. As shown in FIG. 4, when supplied with the traffic information from the traffic observer 11a, the common channel capacity manager 11c averages the traffic volume represented by the supplied traffic information over an average observation time T_a , producing an average value 40a, and determines which one of regions defined by discrete thresholds X_1 about X_5 the average value 40a belongs to. In the illustrated embodiment, the average value 40a belongs to the region between the thresholds X_3 , X_4 . After the region to which the average value 40a belongs has been determined, the common channel capacity manager 11c selects a larger one of the thresholds X_3 , X_4 , i.e., the threshold X_4 i.e. a higher priority is set to each data received if the state of the wireless channel is below a predetermined threshold. The common channel capacity manager 11c then compares the selected threshold X_4 with a channel capacity 41a (corresponding to the threshold X_5) to which the common signal channel 2 is presently set. If the selected threshold X_4 differs from the channel capacity 41a, then the common channel capacity manager 11c decides that the channel capacity to which the common signal channel 2 is presently set needs to be changed, and designates the selected threshold X_4 as a channel capacity to be newly established. Since the selected threshold X_4 differs from the channel capacity 41a in this illustrated embodiment, the common channel capacity manager 11c designates the threshold X_4 as a channel capacity 41b to be newly established i.e. a lower priority is set to each data received if the state of the wireless channel is above a predetermined threshold. Also, in a second embodiment Kazutoshi teaches that channel QoS management unit instruct the channel control unit to set priority to each data received from the plurality of mobile apparatuses. (6:51-67 read [t]he present wireless ATM system is capable of operating with different physical levels that may vary in terms of bit-rate and burst acquisition performance i.e. channel QoS management. The basic requirement for the wireless ATM network is a

Art Unit: 2416

burst modem with a reasonably high bit-rate (typically 10 mbps or higher) and a relatively short acquisition preamble (16 bytes or lower). The system definition permits the use of burst modems that do not fully meet the above performance goals, in which case certain service quality and channel efficiency limitations will result. and 7:1 – 5 read [t]he MAC layer protocol, i.e. QoS management unit, is capable of providing integrated support of ATM services, including constant bit-rate (CBR), variable bit-rate (VBR) and available bit-rate (ABR) i.e. instruct the channel control unit to set priority to each data received from the plurality of mobile apparatuses and Figure 6).

6. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the ATM teachings of Raychaudhur with the channel monitor, control and change teachings of Kazutoshi to map ATM bandwidth with wireless channel conditions. By doing do, valuable ATM bandwidth can be re-allocated to other network services when the wireless channel conditions are poor e.g. high BER and C/N, and conversely additional ATM bandwidth can be re-allocated when the wireless channel conditions are good. This would optimize the ATM network and make it more economical.

7. Claims 3, 8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raychaudhur, (U.S. Patent 563871) in view of Kazutoshi et al. (U.S. Patent 5978380), hereafter Kazutoshi and further in view of Aznar et al (U.S. Patent 6754182), hereafter Aznar.

8. Regarding Claims 3, 8, and 12, though teaching the limitations of Claim 1, neither Raychaudhur nor Kazutoshi teach at the time of decoding in coding/decoding unit, record time information; transfer data to the channel control unit together with the recorded time information; and abandon data whose delay exceeds a delay designated by the Channel QoS management unit.

9. However, Aznar teaches of an ATM traffic-policing algorithm where conforming cells are accepted into the network and non-conforming cells may be disposed, i.e. abandoned, of immediately.

Art Unit: 2416

Aznar's method allow use of a finite counter for measuring elapsed time at entry ports of ATM switching nodes (Abstract, Figure 1; 3:26-50)

10. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the ATM teachings of Raychaudhur, the channel monitor, control and change teachings of Kazutoshi with the ATM traffic policing algorithm of Aznar to record time information i.e. timestamp, during codec and then use the policing algorithm in the Channel QoS management unit to regulate which data is passed to the ATM network.

11. In this manner, tardy data, i.e. cells, can be immediately abandoned so as not to consume valuable ATM bandwidth. This would further improve the efficiency of the network, making it more cost effective. Integrating the ATM traffic-policing algorithm in the Channel QoS management unit is logical because policing traffic is the main function of that unit.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Baron whose telephone number is (571) 270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bruce can be reached on (571) 272-2487. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2416

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./
Examiner, Art Unit 2416

HB

/Brenda Pham/
Primary Examiner, Art Unit 2416